

In our solar nebula the areas described by the radius vector diminished very slowly, on account of the very slight friction, which also retarded the velocities of the planets, as I have shown in Section 19th.

August 6th.

MR. CASSIN, Vice-President, in the Chair.

Nineteen members present.

Dr. H. C. Wood, Jr., called the attention of the Academy for a few minutes to some observations on the life history of some of our siphonaceous fresh water algæ.

He stated that the accounts of the method of the production of the zoospores of the ordinary *Achlya prolifera*, as given by Henfrey and Carpenter, differed very essentially. The former states that the zoospores do not directly appear in the filaments, but that in the original zoosporangium are formed only *daughter cells* by the aggregation of nitrogenous protoplasm, which daughter cells are incapable of spontaneous motion, are unprovided with cilia, and are emitted apparently by being, as it were, forced out by endosmotic pressure excited through the zoosporangium. After emission, according to Henfrey, they remain clustered at the end of the filament, and in a few hours each daughter cell gives origin to a single zoospore, which is formed from the whole of its protoplasmic contents. According to Carpenter, the zoospores are formed directly in the zoosporangium, are then furnished with cilia, and escape by means of their own motile power. Dr. Wood stated that his own observations on the plant entirely corroborate and coincide with the results arrived at by the lamented Henfrey, and that he had frequently seen the very delicate cellulose coats of the daughter cells still aggregated around the distal end of the zoosporangium after the escape of the zoospores from them. Dr. Wood further called the attention of the members to the existence of several algoid forms growing in the neighborhood of the city, which were closely allied to *Achlya prolifera*, but in some respects quite distinct from it. In one of these, which appears to be at least generically the same as the former species, the Doctor stated he had studied the formation of *resting spores*, which takes place in a way similar to that seen in other of the Siphonaceæ, such as the *Vaucheria*. At the distal end of a filament about to form resting spores a roundish bulb-like enlargement takes place, which soon is crowded with nitrogenous protoplasm derived from the main filament, from which it is in a little while shut off by a delicate membranous partition. About this time, just below such sporangium, there appears a process very similar to that seen in the *Vaucheria*, which process finally comes in contact with the sporangium, between which and itself a communication is soon established. The contents of the sporangium now contract themselves into a globular ball, and develop into the resting spore.

If these views and observations hereafter should be confirmed, they would settle the doubt expressed by many authorities, whether the *Achlya* be not merely a submerged fungus, altered by this very submersion so as to resemble an algoid growth; for if species of the genus are found whose whole life history is similar to that of others of the Siphonaceæ, even to the formation of resting spores by a kind of conjugation, it seems indisputable that the organisms under consideration are perfect entities, not merely degraded forms of higher plants. Further, granting the facts stated, if one of the Siphonaceæ is a fungoid growth, surely all the others must be; and it does not seem probable that the *Vaucheria*, with its green endochrome, is a fungoid growth.

Dr. Leidy mentioned the recent appearance of the seventeen year locust in Montgomery, Wythe and other counties of Virginia.

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